Computer Vision

Assignment_2

Link https://colab.research.google.com/drive/109Wv-6Hku5vg5m-tdNQJOeArDW64plri?usp=sharing

Methodology-

- Load images from folder and Resize it in 64X64 for easy computation.and convert them into gray
- Create some Functions **Affinity_matrix,Degree_matrix,Laplacian_matrix=(L)**
- **Ratio_cut_Clustering & K_means_Clustering**
- First I flatten the Processed Image and make tensors
- Now cluster the Images_Tensors called X
- using these two techniques
- And predict labels using **second eigenvalue of X'LX**
- For ratio cut method and for K-Mean use **Median eigenvector**

Here I use Some Libraries

```
from scipy.sparse import csr_matrix
from scipy.sparse.linalg import eigs
```
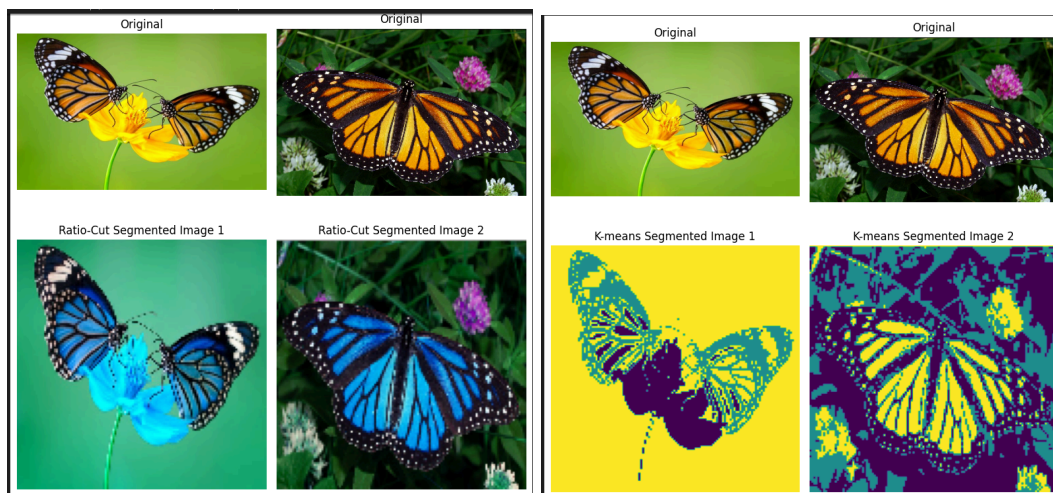**For calculating eigenvectors**

Observation

- **Cut_Ratio clustering Segmentation is more better than K means clustering as K Means clustering is cot consider the data distribution in feature space and spread uniformly in all directions so their clusters are more likely spherical**
- **On other hand Cut ratio use Rayleigh quotient for label prediction that is quite good for high dimension feature space**

Results_4X2

Cluster=3

Cluster=6